

WHAT IS CLAIMED IS:

- 1 1. A method of prioritizing a plurality of service
2 systems in a wireless communication system comprising:

3 determining a reference location;

4 calculating a distance from the reference location to
5 each of the plurality of service systems; and

6 prioritizing the plurality of service systems based on
7 the distance from the reference location.
- 8 2. The method of Claim 1, wherein the reference
9 location is determined using a global positioning system.
- 10 3. The method of Claim 1, wherein the reference
11 location is determined using dead reckoning.
- 12 4. The method of Claim 1, wherein the reference
13 location is a last known location of a mobile station.
- 14 5. The method of Claim 1, wherein the calculating step
15 further comprises:

16 determining a drift term; and

17 adjusting the reference location based on the drift term.

1 6. The method of Claim 5, wherein the drift term is
2 determined using the equation:

3
$$\text{radius}_d = (t - t_{\text{last-system}}) V_{\text{max}}$$

4 where t is a current time, $t_{\text{last-system}}$ is a time that service was
5 last available on a last known system, and V_{max} is a maximum
6 expected velocity that a mobile station would travel during
7 the period without service.

1 7. The method of Claim 6, wherein the distance is
2 calculated using the equation:

3
$$d_{\text{sys}(n)} = \frac{\sqrt{(\text{latitude}_s - \text{latitude}_r) + (\text{longitude}_s - \text{longitude}_r)}}{\text{radius}_s + \text{radius}_d}$$

4 8. A method of prioritizing a plurality of service
5 systems in a wireless communication system comprising:

6 determining a reference location; and

7 obtaining a prioritized list of service systems based on
8 the reference location.

9 9. The method of Claim 8, wherein the reference
10 location is determined using a global positioning system.

11 10. The method of Claim 8, wherein the reference
12 location is determined using dead reckoning.

1 11. The method of Claim 1, wherein the prioritized list
2 of service systems based on the reference location is obtained
3 from stored data within a mobile station.

1 12. The method of Claim 11, wherein the data is stored
2 in the system selection database.

1 13. The method of Claim 12, wherein the system selection
2 database includes a position reference for each of the
3 plurality of service systems.

1 14. A mobile station for use in a wireless communication
2 system comprising:

3 a position determination device; and

4 a database of system providers based on position
5 information.

6 15. The mobile station of Claim 14, wherein the position
7 determination device is a global positioning system.

8 16. The mobile station of Claim 14, wherein the database
9 is included in the system selection database.

10 17. The mobile station of Claim 14, wherein the mobile
11 station selects one of the system providers based on the
12 database information.

1 18. A mobile station for use in a wireless communication
2 system comprising:

3 a position determination device;

4 a service detector which determines if service is
5 available at any given position; and

6 memory locations for storing data regarding service
7 availability for a plurality of locations, wherein the
8 grouping of the memory locations provides a map of a service
9 area showing service availability.

19. The mobile station of Claim 18, wherein the position
determination device is a global positioning system.

20. The mobile station of Claim 18, wherein a grouping
of memory locations containing position information can be
converted to a formula defining a service area.

21. The mobile station of Claim 18, wherein each memory
location stores both a latitude and a longitude of a position
along with information indicating whether service was
available at the position.

22. A method of mapping a service system for a wireless
communication system comprising:

 establishing a reference location;

4 determining service availability for the reference
5 location; and

6 storing the information on service availability for the
7 reference location.

1 23. The method of Claim 22, wherein the reference
2 location is established using a global positioning system.

1 24. The method of Claim 22, wherein the reference
2 location is determined using dead reckoning.

1 25. The method of Claim 22, further comprising:

2 collecting data on service information for a plurality of
3 reference locations; and

4 combining the data to provide a map of a service area
5 showing service availability.

6 26. The method of Claim 25, further comprising
7 converting the combined data into a formula defining a service
8 area.

1 27. The method of Claim 22, wherein the stored
2 information includes both a latitude and a longitude of the
3 reference location along with information indicating whether
4 service was available at the reference location.